

Section 4.6 Geology, Soils, and Seismicity

4.6.1 INTRODUCTION

This section of the EIR describes the existing local and regional geologic, soils, and seismic characteristics of the Project Area and the surrounding region. This section evaluates the potential environmental effects related to seismic hazards, underlying soil characteristics, and subsidence on future implementing project sites within the Project area. Information given in this section is based on geologic and soil information obtained from available public resources including, but not limited to, the 2003 *Riverside County General Plan* (GPA No. 618), Safety Element, *General Plan EIR No. 441* (2003), Riverside County Ordinance Nos. 457 and 460, the *Southwest Area Plan*, proposed Temecula Valley Wine Country Policy Area (2011), Wine Country zones of Ordinance No. 348, the *Temecula Valley Wine Country Design Guidelines*, and available Riverside County Geographical Information Systems (GIS) data and geologic maps.

4.6.2 EXISTING CONDITIONS

ENVIRONMENTAL SETTING

Regional Geology

The Project area is situated in the Peninsular Ranges geomorphic province of California which generally extends from the Los Angeles Basin southward to the southern tip of Baja California. The province is composed of dissected, mesa-like terraces that become rolling hills further inland. The terrain overlies sedimentary rocks composed mainly of sandstone, shale, and conglomerate beds caused by erosion of the Peninsular Ranges to the east; refer to Exhibit 4.6-1, *Regional Geology*.

The uplifting of the Peninsular Ranges province created a series of large faults. These faults include the Elsinore fault and San Jacinto fault, which developed along the edge of the province. In the eastern portion of the Peninsular Ranges province, the province “dropped” down and created the Salton Trough-Gulf of California depression. Since the Salton Trough province is lower than the surrounding landscape, drainages of the Peninsular Ranges carried sediment deposits to the area. Marine waters from the Gulf of California occasionally inundated the Salton Trough, carrying marine deposits to the sediment.

The Peninsular Ranges province is anchored by Cretaceous-age igneous rocks of the Southern California Batholith and contains various Jurassic-age metamorphic rocks (as roof pendants), often situated as isolated blocks within the igneous rocks. Mesozoic metamorphic rocks that were intruded by plutonic rocks of the Southern California Batholith generally underlie the mountain ranges. Subsequently deposited marine and non-marine sedimentary formations generally underlie the coastal plain.

Fault Hazard Zones

In Southern California, earthquakes generally occur due to movement between the Pacific and North American plates. Faults along the San Andreas Fault Zone system are generally assumed to identify the location of the boundary between the two plates; however, the resultant deformation, faulting, and associated earthquakes span a wide zone that reaches from off the shore of California to the State of Nevada. The San Andreas fault bisects Riverside County and experiences the majority of movement

between the two plates. Other motion occurs along the northwest-trending, strike-slip faults of the San Andreas system, primarily the San Jacinto, Elsinore, Newport-Inglewood, and Palos Verdes faults; a number of east-trending thrust faults that bound the Transverse Ranges; and, the Eastern Mojave Shear Zone which are represented by a series of faults located to the east of the San Andreas.¹

Damage resulting from fault rupture generally represents only a small percentage of the overall damage caused by an earthquake. As structural design methods are limited in reducing damage from fault rupture, it is generally recommended that setbacks from such known faults be observed to minimize potential risk; however, not all active faults are known, while others are assumed to be inactive. Active faults are defined by the State of California as those faults having experienced surface displacement during the Holocene Age, or approximately the last 11,000 years. Such surface displacement is exhibited by the existence of cliffs in alluvium, terraces, offset stream courses, the alignment of depressions, sag ponds, fault troughs and saddles, and markedly linear steep mountain fronts.² The most significant known active faults in the vicinity of the Project area include:

Elsinore Fault Zone: The Elsinore Fault Zone, which includes the Wildomar and Wolf Valley faults, passes through the Cities of Murrieta and Temecula to the west/northwest of the Project area. This Elsinore Fault Zone is capable of generating an earthquake in excess of Richter Magnitude (M) 6.8 and is located approximately four (4) miles west of the Project area. The Wildomar Fault Zone runs northwest/southeast and is located approximately three (3) miles west of the Project area. Areas adjacent to the Wildomar Fault are within a "Special Studies Zone" as designated under the Earthquake Fault Zoning Act.

San Andreas Fault Zone: The San Andreas Fault Zone, located approximately 50 miles northeast of the Project area, is the dominant active fault in California. The maximum credible earthquake from this fault zone is M 8.25.

Newport-Inglewood Fault Zone: The Newport-Inglewood Fault Zone is located approximately 30 miles southwest of the Project area, and is capable of generating a maximum credible earthquake magnitude of M 7.0.

San Jacinto Fault Zone: The San Jacinto Fault Zone is located approximately 30 miles northeast of the Project area, and has a maximum credible earthquake magnitude of M 7.5.³

Alquist-Priolo Zones have been designated by the California Geologic Survey for the Elsinore, San Jacinto, and San Andreas fault zones within Riverside County; refer to Exhibit 4.6-2, *Alquist-Priolo Fault Zones*. The Temecula Valley Wine Country region is located approximately four miles east of the Elsinore fault, which traverses the Cities of Murrieta and Temecula, then spans further south to San Diego County. No Alquist-Priolo fault zones occur within the boundaries of the Project area. The County also has zoned fault systems mapped within the Project area; refer to Figure 4.6-3, *Fault Hazard Map*. Both fault types trigger similar special studies prior to development to ensure that structures are not built upon active faults and that structures are engineered to appropriate seismic building standards. Existing County fault zones associated with potentially active faults occur within the Wine Country region;

¹ City of Murrieta, *General Plan Update* (July 2011).

² Ibid.

³ Ibid.

specifically, the Buck Mesa faults, Agua Tibia Mountains faults, and unnamed faults in the Elsinore fault system. Seismic activity along regional and local faults would produce ground-shaking effects and, during a seismic event, these faults could shift resulting in ground rupture.

Ground Shaking

Ground shaking occurs when an earthquake generally causes lateral movement and vertical ground acceleration that can result in structure damage and/or failure. Seismic ground shaking varies dependent upon the physical characteristics of a given site or area and can be influenced by the magnitude of the earthquake, distance to the area considered, the path the resultant seismic waves follow as they travel through the earth, underlying rock and/or soil types, and topography (e.g. valley vs. hilltop location). The extent of resulting damage is also influenced by the physical characteristics of affected structures (e.g. age, building materials, size, height, etc.).

Seismic waves vary in both length and frequency as the result of an earthquake event. Long-period seismic waves, typically resulting from large-magnitude earthquakes, have the greatest potential to cause structural damage to larger structures, such as high-rise buildings and bridges. Seismic waves of a shorter period tend to cease relatively quickly and may result in damage closer to the epicenter of an earthquake, with damage more likely limited to smaller structures such as one-story and two-story buildings.

The most likely source of strong ground motion to potentially affect the Project area would be a major earthquake (between M 7.0 and M 8.25) along the San Andreas fault, the main trace of which is located an estimated 50 miles to the northeast of the Project area. As stated above, the fault is an active fault, and has an estimated recurrence interval of approximately 100 to 200 years. An earthquake of M 7.5 or greater has a 30 percent chance of occurrence along the Mojave segment of the San Andreas fault zone by the year 2018.⁴ The Elsinore Fault Zone, San Jacinto Fault Zone, and Newport-Inglewood Fault Zone are also capable of seismic ground shaking within the Project area. The intensity of ground shaking at a particular implementing project site depends upon the magnitude of the earthquake, distance to the epicenter, and the geology of the site and the area between the epicenter and the project site.

Liquefaction

Liquefaction is a condition where, due to ground shaking, granular soil below the water table temporarily loses strength and behaves as a viscous fluid, rather than a solid. Relatively clean, clay-free deposits are the most susceptible to liquefaction. Strong ground motion distorts the soil structure, causing the voids between soil particles to collapse, and resulting in an increase in the pore water pressure. The potential for liquefaction to occur is controlled by many factors, including water table depth, soil type, relative density of the soil, grain size of soil particles, the percentage of clay size fines, the intensity and duration of ground shaking, and other factors.

Throughout the majority of the Project area, the potential for liquefaction to occur is considered very low to non-liquefiable; however, several areas of low and moderate risk are present in the northern portion of the Project area, with a corridor of moderate and very high potential generally traversing the south-central portion. Additionally, approximately the southern third of the Project area contains lands assigned a very low to very high potential for liquefaction to occur. These areas are identified on Exhibit 4.6-4, *Liquefaction Zones*.

⁴ City of Murrieta, *General Plan Update Final EIR*, Section 5.8, Geology/Seismic Hazards (July 2011).

Landslides and Rockfalls

The occurrence of landslides and other types of slope failures (e.g., rock falls) is influenced by a number of factors including slope grade, slope height, geologic and soil characteristics, moisture levels, and vegetation cover. The type of underlying rock and pore water pressure represent the most-common factors of landslides; however, slope steepness due to natural or man-made undercutting is also a common factor. Landslides can be triggered by one or more specific or combination of conditions, such as seismic activity, gravity, fires, and precipitation.

Many existing landslides and soil slumps have been mapped within Riverside County, and slopes that have previously failed have a high potential for subsequent failure in the future. Additionally, seismic events producing strong ground acceleration in steep terrain have the potential to result in earthquake-related rockfall. As there are a number of faults occurring within the Project area and surrounding region, there is a high potential for seismically-induced landslides and/or rockfalls to occur. General Plan Figure S-4, *Earthquake Induced Slope Instability Map*, identifies areas of high and low susceptibility for landslides and rockfalls within the Project area. The rationale used to delineate these areas was based on a combination of the slope ratio and the underlying geology. Additionally, General Plan Figure S-5, *Steep Slopes*, identifies steep slopes (greater than 15 percent) within the Project area.

Seismically-Induced Ground Settlement

The potential for seismically-induced settlement to occur is influenced by the intensity and duration of a ground shaking event and the relative density of the subsurface soils. Within the alluvial valleys of Riverside County, sediments were rapidly deposited and may have created conditions of low density sediments that are subject to the potential for settlement during a seismic event. As a result, many valley regions within the County where relatively recent sediments have been deposited may experience settlement during an earthquake event. Areas of valley fill represented on subsidence susceptibility mapping may therefore correlate with the potential extent of relatively young sediments with a moderate to locally high potential for settlement. In areas subject to differential settlement, seismically events have the potential to result in widespread damage, particularly in areas where cut-and-fill activities occur along hillsides.

Subsidence and Collapsible Soils

Ground subsidence is generally represented by a gradual vertical settling or sinking of the ground surface caused by the rearrangement of individual soil grains. Subsidence occurs in poorly consolidated soils, in particular recent alluvium and poorly compacted or improperly founded fills, and may result from natural or manmade causes. Significant natural causes include seismically-induced ground shaking events, tectonic settling and downwarping at a local or regional scale, and heavy rainfall (which is more likely to affect unstable fills). Human-induced causes of subsidence typically include the extraction of groundwater, oil, and gas.

Collapses occurring as the result of subsidence can occur on a small, local level to a broad, regional level where expanses of the Earth's surface are lowered. Subsidence typically occurs throughout a susceptible valley; however, additional displacement and fissures are also experienced at or near the valley margin. Susceptible valleys are predominantly filled with unconsolidated sand and silty sand that include thin layers of silt and clayey silt.

Lands within the Project area are subject to the potential for subsidence; refer to Exhibit 4.6-5, *Subsidence Areas*. The central and southern portions of the Project area support extensive lands that are

identified as susceptible to the occurrence of subsidence, with scattered areas in the northwestern portion also having such potential; however, no active subsidence areas have been identified within the Project area.

Expansive Soils

Expansive (or shrink-swell) behavior is attributable to the water-holding capacity of clay minerals and can adversely affect the integrity of facilities such as pavement or structure foundations. Expansive soils are characterized by their ability to undergo significant volume changes (shrink or swell) due to variations in moisture content. Soils prone to these effects are fine-grained clays and sometimes silts. Changes in soil moisture content can result from precipitation, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors and may result in unacceptable settlement or heave of structures or concrete slabs supported on grade.

The predominant soils in the Temecula Valley Wine Country region generally consist of sandy loams. The swell and shrink (expansion) potential for sandy loam is low to moderate; however, the potential exists for expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), to occur sporadically throughout the Project area and the surrounding region.

Soil Erosion/Loss of Topsoil

Soil erosion occurs when physical influences such as wind, water, or gravity remove soil particles from a land surface. Erosion most often occurs as a natural process at a slow rate; however, the rate of erosion increases when land surfaces are cleared or altered and soils are left exposed without protective cover or vegetation to protect them from erosional influences.

The potential for erosion to occur is largely influenced by the properties of a particular soil type, vegetation, topography and slope, and climatic influences. Soils that are silty or that have a high content of very fine clays are generally the most erodible, whereas soils with high organic content are more stable and have greater permeability. This high organic content decreases the amount of surface runoff and resulting potential for surface erosion. Overall erodibility is influenced by particle size and gradation, organic content of the soil, and permeability. Additionally, surfaces where vegetative cover is present have a lower potential for erosion, as the vegetation provides greater protection of the underlying soils by holding the soil particles in place, thereby reducing potential erosion caused by runoff and/or wind. Climate also influences the potential for soils to erode, creating an increased potential for erosion to occur in areas where the amount of rainfall is high, more intense, or occurs over extended periods of time.

The Temecula Valley Wine Country region is subject to potential impacts from erosion or loss of topsoil due to natural or man-made conditions. Many lands within the Project area currently support agricultural operations (vineyards) and such land uses are anticipated to continue in the future. By accommodating such future implementing projects, implementation of the Project would have the potential to result in an increase in soil erosion or loss of topsoil on affected lands.

4.6.3 REGULATORY FRAMEWORK

EXISTING STATE REGULATIONS

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) was signed into law in December of 1972. The Act requires the delineation of “Earthquake Fault Zones” along known faults that are considered to be “sufficiently active” and “well defined.” The Act is intended to regulate development on or near active fault traces to minimize the potential risk to structures intended for human occupancy from fault-rupture risks (California Public Resources Code §2621–2630). The boundary of an “Earthquake Fault Zone” is generally about 500 feet from major active faults and 200 to 300 feet from well-defined minor faults.⁵ The State Geologist is responsible for the mapping of such active faults as identified in the Division of Mines and Geology Special Publication 42. The maps are then made available to cities and counties for use in developing planning policies and controlling renovation or new construction. No Alquist-Priolo Earthquake Fault Zones are located within the Project area.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA) of 1990 is intended to regulate earthquake hazards resulting from ground shaking, liquefaction, and/or earthquake-induced landslides. The SHMA is implemented by the California Geological Survey (CGS) who provides seismic hazard zone maps to responsible county and city agencies to assist in identifying potential areas considered susceptible to strong seismic ground shaking, liquefaction, earthquake-induced landslides, and other ground-related failures. This information is provided to the local agencies to assist in planning efforts and to reduce and/or minimize the potential loss of life or property. The CGS identifies the “zones of required investigation” where seismic-related hazards are anticipated to occur. When development is proposed within these identified areas, CGS requires that a site-specific geotechnical hazard investigation be conducted to reduce potential hazards. Three (3) Seismic Hazard Zone Maps (for the Bachelor Mountain, Sage, and Pechanga Quadrangles) cover the portions of the Project area; however, the State of California has not published SHMA maps for these quadrangles.⁶

Natural Hazards Disclosure Act

The Natural Hazards Disclosure Act became effective in June 1998. The Act requires that prospective buyers of a particular property located within a State-mapped hazard area be provided with a “Natural Hazard Disclosure Statement” to inform the potential property owner of the risks of seismic hazards associated with the property. If applicable, the seller of the property or his agent must disclose that the property is located within a Seismic Hazard Zone as delineated on a map issued by the State Geologist.

Building Earthquake Safety Act

Per the Building Earthquake Safety Act (1986), local governments are required to maintain an inventory of those structures within their jurisdictions that represent potentially hazardous structural conditions. The local governments are required to create and implement a program that will provide mitigation for

⁵ *County of Riverside General Plan EIR 2003* (GPA No. 618, EIR No. 441). Section 4.10 - Geology and Slope Stability.

⁶ State of California, California Geologic Survey, “CGS Seismic Hazard Zonation Program (SHZP)”, <http://gmw.consrv.ca.gov/shmp/MapProcessor.asp?Action=SHMP&Location=All&Version=7&Browser=IE&Platform=Win>, accessed on October 5, 2011.

such identified structural hazards to ensure that public safety is maintained. The Act serves as the legal basis for the majority of counties and cities throughout the State in documenting hazardous unreinforced masonry buildings and adopting Unreinforced Masonry Ordinances.

Recovery (and) Reconstruction Act

The Recovery and Reconstruction Act, effective 1986, provides local governments with the authority to prepare emergency recovery plans prior to a natural or man-made disaster, and to allow for the reconstruction of damaged structures and resources subsequent to the event. The Act allows local governments to prepare and implement pre-disaster plans and ordinances that evaluate the potential for specific areas within their jurisdictions to be subject to damage from potential disasters; streamline procedures to allow for needed revisions to existing General Plans or zoning ordinances that affect areas susceptible to potential disasters; prepare a contingency plan of action; prepare a response for post-disaster that includes recovery and reconstruction efforts over both the short-term and long-term; and, implement a pre-disaster ordinance to allow local authorities to respond to activities following such an event.

EXISTING COUNTY REGULATIONS

Ordinance No. 457 – Building Codes and Fee Ordinance

Ordinance No. 457 provides regulations aimed at construction activities including, but not limited to, grading, slopes, and compaction; erosion control; retaining wall design; and, earthquake fault zones. For all proposed structures intended for human occupancy that lie within an earthquake fault zone (as identified by the State Geologist pursuant to Section 2621 et seq. of the Public Resources Code and subject to the Riverside County AlquistPriolo Special Studies Zoning Ordinance No. 547), the applicant shall be required to comply with the provisions of this Ordinance prior to issuance of a building permit.

EXISTING COUNTY GENERAL PLAN POLICIES

Relevant policies pertaining to geology and soils are identified in the Riverside County General Plan Safety Element and the Land Use Element. The General Plan policies are aimed at minimizing and/or avoiding the risks associated with strong seismic ground shaking, liquefaction, subsidence, earthquake-induced landslides, and other ground-related failures. The following policies are considered applicable to the Project as proposed; however, as the County is currently updating the General Plan, it should be noted that such policies may be revised at a future date.

Safety (S) Element Policies

Fault Rupture and Seismically-Induced Ground Shaking

- Policy S 7.7 Strengthen the project permit and review process to ensure that proper actions are taken to reduce hazard impacts and to encourage structural and nonstructural design and construction. Damage must be minimized for critical facilities, and susceptibility to structural collapse must be minimized, if not eliminated.
- a. Ensure that special development standards, designs, and construction practices reduce risk to tolerable levels for projects involving critical facilities, large-scale residential development, and major commercial and industrial development

through conditional uses permits and the subdivision review process. If appropriate, impact fees should be assessed to finance required actions.

- b. Require that planned lifeline utilities, as a condition of project approval, be designed, located, structurally upgrades fit with safety shutoff valves, be designed for easy maintenance, and have redundant back up lines where unstable slopes, earth cracks, active faults, or areas of liquefaction cannot be avoided.

Policy S 7.8 Promote strengthening of planned and existing utilities and lifelines, the retrofit and rehabilitation of existing weak structures, and the relocation of certain critical facilities.

Policy S 7.11 Coordinate with the Public Utilities Commission (PUC) and/or utilize the Capital Improvement Program (CIP), to strengthen, relocate, or take other appropriate measures to safeguard high-voltage lines, water, sewer, natural gas and petroleum pipelines, and trunk electrical and telephone conduits that:

- Extend through areas of high liquefaction potential;
- Cross active faults; or,
- Traverse earth cracks or landslides.

Seismically-Induced Liquefaction, Landslides, and Rock Falls

Policy S 2.2 Require geological and geotechnical investigations in areas with potential for earthquake-induced liquefaction, landsliding or settlement as part of the environmental and development review process, for any structure proposed for human occupancy, and any structure whose damage would cause harm.

Policy S 2.3 Require that a State-licensed professional investigate the potential for liquefaction in areas designated as underlain by "Susceptible Sediments" and "Shallow Ground Water" for all general construction projects (Figure S-3).

Policy S 2.4 Require that a State-licensed professional investigate the potential for liquefaction in areas identified as underlain by "Susceptible Sediments" for all proposed critical facilities projects (Figure S-3).

Policy S 2.5 Require that engineered slopes be designed to resist seismically-induced failure. For lower-risk projects, slope design could be based on pseudo-static stability analyses using soil engineering parameters that are established on a site-specific basis. For higher-risk projects, the stability analyses should factor in the intensity of expected ground shaking, using a Newmark-type deformation analysis.

Policy S 2.6 Require that cut and fill transition lots be over-excavated to mitigate the potential of seismically-induced differential settlement.

Policy S 2.7 Maximum variation of fill depths beneath structures to mitigate the potential of seismically-induced differential settlement.

Landslides, Rockfalls, and Debris Flows

Policy S 3.1 Require the following in landslide potential hazard management zones, or when deemed necessary by the California Environmental Quality Act:

- a. Preliminary geotechnical and geologic investigations.
- b. Evaluations of site stability, including any possible impact on adjacent properties, before final project design is approved.
- c. Consultant reports, investigations, and design recommendations required for grading permits, building permits, and subdivision applications be prepared by State-licensed professionals.

- Policy S 3.2 Require that stabilized landslides be provided with redundant drainage systems. Provisions for the maintenance of subdrains must be designed into the system.
- Policy S 3.3 Before issuance of building permits, require certification regarding the stability of the site against adverse effects of rain, earthquakes, and subsidence.
- Policy S 3.4 Require adequate mitigation of potential impacts from erosion, slope instability, or other hazardous slope conditions, or from loss of aesthetic resources for development occurring on slope and hillside areas.
- Policy S 3.5 During permit review, identify and encourage mitigation of onsite and offsite slope instability, debris flow, and erosion hazards on lots undergoing substantial improvements.
- Policy S 3.6 Require grading plans, environmental assessments, engineering and geologic technical reports, irrigation and landscaping plans, including ecological restoration and revegetation plans, as appropriate, in order to assure the adequate demonstration of a project's ability to mitigate the potential impacts of slope and erosion hazards and loss of native vegetation.
- Policy S 3.7 Support mitigation on existing public and private property located on unstable hillside areas, especially slopes with recurring failures where County property or public right-of-way is threatened from slope instability, or where considered appropriate and urgent by the County Engineer, Fire, or Sheriff Department.

Land Use (LU) Element Policies

- Policy LU 11.1c Require that areas with slopes be developed in a manner to minimize the hazards from erosion and slope failures.
- Policy LU 11.1e Require hillside adaptive construction techniques, such as post and beam construction, and special foundations for development when the need is identified in a soils and geology report that has been accepted by the County.
- Policy LU 11.1f Limit grading, cut and fill to the amount necessary to provide stable areas for structural foundations, street rights-of-way, parking facilities, and other intended uses.

Subsidence and Collapsible Soils

- Policy S 3.8 Require geotechnical studies within documented subsidence zones, as well as zones that may be susceptible to subsidence, as identified in Figure S-7 and the Technical Background Report, prior to the issuance of development permits. Within the documented subsidence zones of the Coachella, San Jacinto, and Elsinore valleys, the

studies must address the potential for reactivation of these zones, consider the potential impact on the project, and provide adequate and acceptable mitigation measures.

Policy S 3.9 Develop a liaison program with all County water districts to prevent water extraction-induced subsidence.

Policy S 3.10 Encourage and support efforts for long-term, permanent monitoring of topographic subsidence in all producing groundwater basins, irrespective of past subsidence.

4.6.4 SIGNIFICANCE THRESHOLD CRITERIA

The criteria used to determine the significance of an impact are based on Appendix G of the CEQA Guidelines. For this analysis, implementation of the Project would result in significant impact if the project would:

- a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - Rupture of a known earthquake fault as delineated in the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault
 - Strong seismic ground shaking
 - Seismic-related ground failure, including liquefaction; and,
 - Landslides.
- b) Result in substantial soil erosion or the loss of topsoil;
- c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property; or,
- e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Based on these significance thresholds and criteria, the Project's effects may have *Potentially Significant Effects*, as identified and explained in the December 2009 Initial Study prepared by the County of Riverside. Feasible mitigation measures that could avoid or minimize potentially significant impacts may be identified in the analysis that follows. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a "significant unavoidable impact."

4.6.5 IMPACT ANALYSIS AND MITIGATION

IMPACT METHODOLOGY

The Project proposes a general plan amendment, zone change, design guidelines, updated circulation plan, and updated trails plan within a portion of the Southwest Area Plan. This change in land use policy and guidance is intended to promote the expansion and co-existence of winery, residential, and

equestrian uses within this part of the County. The impact assessment for the Project was performed based on the CEQA Guidelines. The baseline geologic setting was determined, and the applicable regulatory framework was researched. The physical and geologic characteristics of the setting and applicable State and local regulations were used in evaluating the Project's potential impacts with regard to geology and soils, consistent with CEQA significance criteria. Mitigation measures were identified as appropriate to reduce potential impacts to the extent feasible.

For each topic below, programmatic, construction, operational, and infrastructure improvement-related impacts associated with the proposed Project have been identified and analyzed. When considering the significance of an individual impact, the EIR considers the existing local, State and Federal regulations, laws and policies in effect, including applicable County General Plan policies. In addition, the impact analysis considers the Project Design Features that have been incorporated into the Project to avoid, reduce or offset potential impacts. In cases where existing regulations and policies and Project Design Features may not adequately reduce Project impacts, the County has proposed additional mitigation measures under General Plan EIR No. 441 to reduce, avoid or offset Project-related impacts. These mitigation measures will be incorporated into the Project Mitigation Monitoring and Reporting Program, which will be adopted as part of the Project approval process.

PROJECT DESIGN FEATURES

The following Project Design Features are incorporated into the Project to avoid, reduce or offset potential significant environmental impacts, as reflected in the Project proposal materials, including the proposed General Plan Amendment, Zoning Ordinance Amendment, and Temecula Valley Wine Country Design Guidelines:

- 1) As part of the Wine Country Infrastructure Study (WCIS), EMWD identified potential alternatives to accommodate Project sewer flows, reducing reliance on onsite septic treatment facilities. Descriptions of these alternatives are provided in the Chapter 3.0, *Project Description*.
- 2) On-site drainage improvements would be made at the time implementing projects occur to control any increased flows and ensure erosion of downstream environments do not occur.

IMPACT ANALYSIS AND MITIGATION MEASURES

Impact 4.6-1: Fault Rupture, Ground Shaking, Ground Failure and Landslides

Threshold: *Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*

- a) *Rupture of a known earthquake fault, as delineated in the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;*
- b) *Strong seismic ground shaking;*
- c) *Seismic-related ground failure, including liquefaction; or,*
- d) *Landslides?*

A. Rupture of a Known Earthquake Fault

Determination: Less than Significant

Wine Country Community Plan Overview of Programmatic Impacts

As stated above, the Project area lies approximately four miles from the Elsinore fault, which runs through the Cities of Murrieta and Temecula just to the west/northwest, then south to San Diego County; refer to Exhibit 4.6-2, *Alquist-Priolo Fault Zones*. Additional active earthquake faults systems have also been mapped in the area and pose the potential for rupture along such faults; refer to Exhibit 4.6-3, *Fault Hazard Map*. Both fault types trigger the requirement for geologic analysis prior to development to determine the potential for damage from earthquake faults to occur, to ensure that structures are not built upon active faults and that structures are engineered to appropriate seismic building standards. While there are no known active Alquist-Priolo earthquake faults in the Project area, there are County fault zones which traverse the Project area.

All implementing projects would be required to comply with design measures given in the California Building Code (CBC) to ensure impacts from fault rupture are reduced to less than significant levels. In addition, future implementing projects would be required to comply with County Ordinance No. 547, which subjects all development proposed within an identified earthquake fault zone, as shown maps prepared by the State Geologist, to the requirements of the Alquist-Priolo Act and the criteria identified within the Ordinance. Similarly, implementing project would be required to adhere to General Plan Policy S 2.1 for County Fault Zones to ensure impacts from fault rupture are reduced to less than significant levels. Before an implementing project can be permitted within an Alquist-Priolo Earthquake Fault Zone, County Fault Zone, or within 150 feet of any other potentially active or active fault mapped in published U.S. Geological Survey (USGS) or California Geologic Survey (CGS) (formerly known as the California Division of Mining and Geology) reports, a geologic investigation must demonstrate that proposed buildings will not be constructed across active faults. If an active fault is found, a structure for human occupancy must be set back 50 feet from the fault, unless adequate evidence, as determined and accepted by the County Engineering Geologist, is presented to support a different setback. This is a standard condition of approval and not considered unique mitigation pursuant to CEQA.

The County General Plan gives the County Engineering Geologist the authority to exercise discretion in regard to the level of analysis required for geologic studies for implementing project sites intersecting with a County fault zones; these studies for County faults may be less extensive than studies required for Alquist-Priolo Earthquake Fault Zones (e.g., in some cases trenching for faults may not be required).

Prior to approval of a grading permit, applicants would be required to prepare a site-specific geotechnical evaluation to determine potential geological hazards and to adhere to recommendations made in the report to reduce potential risk of damage to structures or other improvements. Additionally, implementing projects would be subject to the requirements of the Riverside County Municipal Code Chapter 15.60, Sections 15.60.010 to 15.60.070, which identify requirements for development subject to the provisions of the Alquist-Priolo Earthquake Fault Zoning Act, as well as pertinent requirements of the State Mining and Geology Board, to reduce potential structural damage caused by fault rupture.

Implementing projects within the Project area would also be subject to County of Riverside General Plan Policy S.2.1 of the Safety Element Policy (see Section 4.6.3, above) which specifically addresses the potential effects of fault rupture and requires enforcement of the Alquist-Priolo Earthquake Fault Zoning

Act provisions through preparation of a site-specific geotechnical analysis for those areas located within fault zones. Additionally, Mitigation Measure 4.10.1A, as identified in Final EIR No. 441 for the County of Riverside General Plan, requires preparation of a site-specific geotechnical analysis for those properties located within a mapped potential earthquake hazard area, prior to issuance of a building permit, to identify potential seismic hazards and appropriate design measures, as needed, to reduce potential impacts with regard to fault rupture to less than significant.

Construction-related Impacts (of Implementing Projects)

Development resulting from implementing projects is expected to occur over a 25-year period. Temporary construction related impacts are anticipated to involve grading to construct buildings, access roads, signage, lighting, landscaping, onsite utilities, trails and necessary infrastructure improvements to support implementing projects. All implementing projects within the Project area would be subject to applicable State and local regulations pertaining to specific construction methods and/or restrictions on land use to reduce the potential for property loss, injury, or death that could result from rupture(s) of faults during earthquake events. Conformance with State regulations and existing standard conditions or requirements will reduce impacts to less than significant.

Operational Impacts (of Implementing Projects)

The Project will support new and existing rural residential, winery, and equestrian uses, as well as other commercial activities that encourage tourism. The goal of the Project is to expand development opportunities and attract tourists to the area. The potential increase in tourism could increase the number of people exposed to fault rupture associated with an earthquake event. However, all buildings would conform to state regulations and existing standard conditions or requirements which would reduce impacts to less than significant.

Infrastructure Impacts (of Implementing Projects)

Most infrastructure including sewer lines, domestic water transmission lines, and dry utilities will be placed underground within existing or proposed roadway right-of-ways. In addition, infrastructure improvements (pump stations, water tanks, roundabouts, etc.) are anticipated to be constructed within the Project area where deemed necessary. The construction and placement of all infrastructure and infrastructure facilities would conform to state regulations, seismic design requirements, ordinances, and existing standard conditions or requirements which are designed to reduce impacts to less than significant. In addition, compliance with General Plan Policy S 2.1(c) would require that lifelines be designed to resist, without failure, their crossing of a fault, should fault rupture occur.

Summary of Applicable Existing Regulations and Policies

- a) California Building Code design measures.
- b) County Ordinance No. 547, subjects all development proposed within an identified earthquake fault zone to the requirements of the Alquist-Priolo Act and the criteria identified within the Ordinance.
- c) Riverside County Municipal Code Chapter 15.60, Sections 15.60.010 to 15.60.070, which identify requirements for development to reduce potential structural damage caused by fault rupture.
- d) County of Riverside General Plan Policy S.2.1 of the Safety Element addresses the potential effects of fault rupture and requires enforcement of the Alquist-Priolo Earthquake Fault Zoning Act provisions through preparation of a site-specific geologic analysis for those areas located

within fault zones. This Policy also allows the County to require geologic studies or analyses for non-zoned faults .

- e) Standard Conditions or Requirements. Mitigation Measure 4.10.1A, as identified in the Final EIR No. 441 for the County of Riverside General Plan, is summarized below:
1. Before a project is approved or otherwise permitted within an Alquist-Priolo Fault Hazard Zone, County Fault Zone, within 150 feet of any other active or potentially active fault mapped in a published USGS or CGS reports, or within other potential earthquake hazard area (as determined by the County Geologist), a site-specific geologic investigation shall be prepared to assess potential seismic hazards resulting from development of the project site. Where and when required, the geotechnical investigation shall address the issue(s), hazard(s), and geographic area(s) determined by the County Geologist to be relevant to each development. Based on the site-specific geotechnical investigation, no structures intended for human occupancy shall be constructed across active faults. If an active fault is discovered, any structure intended for human occupancy shall be set back at least 50 feet from the fault.

Mitigation Measures

No additional mitigation is necessary.

Conclusion

Although implementation of the Project would potentially increase exposure of future development from implementing projects within the Project area to damage caused by earthquake fault rupture, all implementing projects would be subject to the above-described State and local regulations, ordinances, General Plan policies, and standard conditions or requirements, which are intended to reduce damage to structures and loss of life caused by an earthquake. Such conformance would be adequate to ensure that potential impacts from the effects of fault rupture on any habitable structure, critical facility, or other infrastructure would be reduced to less than significant, and no additional mitigation measures are required or proposed. This analysis is consistent with the requirements of a program EIR and future site-specific implementing projects proposed within the Project area will require site-specific CEQA analysis at a later date.

B. Strong Seismic Ground Shaking

Determination: Less than Significant with Mitigation

Wine Country Community Plan Overview of Programmatic Impacts

Implementing projects within the Project area may increase the exposure of people to potential property loss, injury, or death resulting from the effects of ground shaking. As stated previously, a number of faults within the region surrounding the Project area are capable of causing substantial ground shaking. Land affected by the Project would likely experience strong ground shaking resulting from moderate to strong earthquakes, due to its location with regard to the geologic setting. While such shaking would be less severe from an earthquake that originates at a greater distance from the Project area, the effects could potentially be damaging to structures.

The most likely source of strong ground motion to potentially affect the Project area would be a major earthquake (between M 7.0 and M 8.25) along the San Andreas fault, the main trace of which is located an estimated 50 miles to the northeast of the Project area. Additionally, an earthquake of M 7.5 or

greater has a 30 percent chance of occurrence along the Mojave segment of the San Andreas fault zone by the year 2018.⁷ The Elsinore Fault Zone, San Jacinto Fault Zone, and Newport-Inglewood Fault Zone are also capable of seismic ground shaking within the Project area. The intensity of ground shaking depends upon the magnitude of the earthquake, distance to the epicenter, and the geology of the area between the epicenter and the Project area.

All implementing projects within the Project area would be subject to the provisions of the California Building Standards Code in Title 24, which provides regulations for structural design and construction with regard to seismic safety. Additionally, Chapter 15.60, Earthquake Fault Area Construction Regulations, of the County of Riverside Municipal Code, adopted pursuant to the requirements of the Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code, Section 2621, et seq.) and the adopted Policies and Criteria of the State Mining and Geology Board, requires that all development permit applications comply with the provisions of the Act, State Mining and Geology Board requirements, and measures identified in Chapter 15.60.

As identified above in Section 4.6.3, the County of Riverside General Plan includes specific policies to address the potential effects of seismic ground shaking. All implementing projects within the Project area would be required to comply with General Plan Policies S 7.7, S 7.8, and S 7.11, as applicable, to reduce the potential for damage to critical facilities from ground shaking through appropriate design standards and construction practices, restrictions on location, and public education.

Additionally, the County of Riverside General Plan EIR No. 441⁸ provides mitigation measures to reduce the potential for damage caused by ground shaking to occur. Mitigation Measures 4.10.2A, 4.10.2B, and 4.10.2C are intended to reduce potential impacts from seismically-related ground shaking to less than significant. These mitigation measures require that the design and construction of structures and/or facilities comply with the requirements of the California Building Code (California Code of Regulations, Title 24), County Building Code, and/or professional engineering standards appropriate for the seismic zone in which a project is proposed. Conformance with state regulations and existing standard conditions or requirements will reduced impacts to less than significant.

Construction-related Impacts (of Implementing Projects)

Development resulting from implementing projects is expected to occur over a 25-year period. Temporary construction related impacts are anticipated to involve grading to construct buildings, access roads, signage, lighting, landscaping, onsite utilities, trails and necessary infrastructure improvements to support implementing projects. All implementing projects within the Project area would be subject to applicable State and local regulations pertaining to specific construction methods and/or restrictions on land use to reduce the potential for property loss, injury, or death that could result from strong seismic ground shaking. Conformance with state regulations and existing standard conditions or requirements will reduce impacts to less than significant.

Operational Impacts (of Implementing Projects)

The Project will support new and existing rural residential, winery, and equestrian uses, as well as other commercial activities that encourage tourism. The goal of the Project is to expand development opportunities and attract tourists to the area. The potential increase in tourism could increase the number of people exposed to strong seismic ground shaking associated with an earthquake event.

⁷ City of Murrieta General Plan EIR – Section 4.2, Geology, Soils, and Seismicity. June 1994.

⁸ County of Riverside General Plan EIR 2003 (GPA618, EIR 441). Section 4.10 - Geology and Slope Stability.



However, all buildings would conform to state regulations and existing standard conditions or requirements which would reduce impacts to less than significant.

Infrastructure Impacts (of Implementing Projects)

Most infrastructure including sewer lines, domestic water transmission lines, and dry utilities will be placed underground within existing or proposed roadway right-of-ways. In addition, infrastructure improvements (pump stations, water tanks, roundabouts, etc.) are anticipated to be constructed within the Project area where deemed necessary. The construction and placement of all infrastructure and infrastructure facilities would conform to state regulations, seismic design requirements, ordinances, and existing standard conditions or requirements which are designed to reduce impacts to less than significant.

Summary of Applicable Existing Regulations and Policies

- a) California Building Standards Code in Title 24, which provides regulations for structural design and construction with regard to seismic safety.
- b) County of Riverside Municipal Code, Chapter 15.60 Earthquake Fault Area Construction Regulations requires that all development permit applications comply with the provisions of the Alquist-Priolo Earthquake Fault Zoning Act and the adopted Policies and Criteria of the State Mining and Geology Board.
- c) Implementation of County of Riverside General Plan Policies S 7.7, S 7.8, and S 7.11 would reduce the potential for damage to critical facilities from ground shaking through appropriate design standards and construction practices and restrictions on location.
- d) Standard Conditions or Requirements. Three mitigation measures prepared for the 2003 General Plan were adopted to reduce potential impacts from seismically-related ground shaking.
 1. Pursuant to General Plan EIR No. 441 Mitigation Measure 4.10.2A, the design and construction of structures and facilities shall adhere to the standards and requirement detailed in the California Building Code (California Code of Regulations, Title 24), County Building Code, and/or professional engineering standards appropriate for the seismic zone in which such construction may occur. Conformance with these design standards shall be enforced through building plan review and approval by the Riverside County Department of Building and Safety prior to the issuance of building permits for any structure or facility.
 2. Pursuant to General Plan EIR No. 441 Mitigation Measure 4.10.2B, as determined by the County Geologist, a site-specific assessment shall be prepared to ascertain potential ground shaking impacts resulting from development. The site-specific ground shaking assessment shall incorporate up-to-date data from government and non-government sources and may be included as part of any site-specific geotechnical investigation required in General Plan EIR Mitigation Measure 4.10.1A. The site-specific ground shaking assessment shall include specific measures to reduce the significance of potential ground shaking hazard. This site-specific ground shaking assessment shall be prepared by a licensed geologist and shall be submitted to the County Geologist for review and approval prior to the issuance of grading permits.
 3. Pursuant to General Plan EIR No. 441 Mitigation Measure 4.10.2C, the standards stated in General Plan EIR No. 441 Mitigation Measures 4.10.2A and 4.10.2B shall apply to any structure or facility that undergoes, expansion, remodeling, renovation, refurbishment or other modification.



Mitigation Measures

Refer to Mitigation Measures LU-1 in Section 4.10, *Land Use and Relevant Planning*.

GEO-1 All implementing projects shall prepare a site-specific assessment as determined by the County Geologist to ascertain all site-specific geologic/geotechnical information, including, but not limited to, ground shaking potential, liquefaction potential, fault rupture potential and landslide/slope instability potential. This assessment and report shall be prepared by a California-licensed geologist and/or geotechnical engineer and shall be submitted to the County Geologist for review and approval prior to approval of the implementing project. This report shall include site-specific measures such as grading recommendations, foundation design recommendations, slope stability recommendations, and the alternative siting of structures, as appropriate, to reduce the significance of potential geologic and/or geotechnical hazards associated with the proposed implementing project.

Conclusion

Although implementation of the Project would potentially increase exposure of future development associated with implementing projects within the Project area to damage caused by seismic shaking associated with an earthquake event, all implementing projects would be subject to the above-described State and local regulations, ordinances, General Plan policies, standard conditions or requirements, and mitigation, which are intended to reduce damage to structures and loss of life caused by an earthquake. Such conformance would be adequate to ensure that potential impacts from the effects of ground shaking on any habitable structure, critical facility, or other infrastructure would be reduced to less than significant. This analysis is consistent with the requirements of a program EIR and future site-specific implementing projects proposed within the Project area will require site-specific CEQA analysis at a later date.

C. Seismic-Related Ground Failure, Including Liquefaction

Determination: Less than Significant with Mitigation

Wine Country Community Plan Overview of Programmatic Impacts

Due to regional seismic activity, secondary seismic impacts (such as ground failure, soil settlement, subsidence or liquefaction) may occur in various portions of the Project area, as identified in Exhibit S-3 of the County of Riverside *General Plan* (2003). Implementing projects within the Project area would increase the potential for the placement of structures and facilities in or near areas susceptible to liquefaction; however, the potential for liquefaction to occur would be dependent upon the relative density of soils and the measured depth to groundwater from the ground surface on a particular site where development is proposed.

As discussed above, all implementing projects within the Project area occurring within an earthquake fault zone, as shown on the maps prepared by the State Geologist, would be subject to the provisions of the Alquist-Priolo Act and County Ordinance No. 547 which provide regulations for structural design and construction methods with regard to seismic safety. Chapter 15.60 of the County of Riverside Municipal Code requires that all development permit applications for lands within proximity of identified fault zones comply with the provisions of the Act, State Mining and Geology Board requirements, and measures identified in Chapter 15.60. Additionally, the County of Riverside General Plan includes specific policies to address the potential effects of liquefaction resulting from seismic events; refer to

Section 4.6.3, above. As appropriate, all implementing projects within the Project area would be required to comply with General Plan Policy S 2.2 to reduce potential damage from liquefaction through design standards and construction practices and restrictions on location. Policy 2.2 would require geological and geotechnical investigations in areas with potential for earthquake-induced liquefaction, landsliding or settlement as part of the environmental and development review process, for any structure proposed for human occupancy, and any structure whose damage would cause harm.

The County of Riverside General Plan EIR No. 441 provides mitigation measures to reduce the potential for damage caused by liquefaction to occur. Mitigation Measures 4.10.3A and 4.10.3B are intended to reduce potential impacts from seismically-related liquefaction to less than significant through compliance with the applicable California Building Code, County Building Code, and/or professional engineering standards. As appropriate, future applicants for implementing projects within the Project area would be required to prepare a site-specific geologic assessment, prior to issuance of a grading permit, to identify potential impacts resulting from liquefaction and appropriate measures to reduce the significance of such impacts.

Construction-related Impacts (of Implementing Projects)

Development resulting from implementing projects is expected to occur over a 25-year period. Temporary construction related impacts are anticipated to involve grading to construct buildings, access roads, signage, lighting, landscaping, onsite utilities, trails and necessary infrastructure improvements to support implementing projects. All implementing projects within the Project area would be subject to applicable State and local regulations pertaining to specific construction methods and/or restrictions on land use to reduce the potential for property loss, injury, or death that could result from secondary seismic impacts such as ground failure, soil settlement, subsidence or liquefaction. Conformance with state regulations and existing standard conditions or requirements will reduce impacts to less than significant.

Operational Impacts (of Implementing Projects)

The Project will support new and existing rural residential, winery, and equestrian uses, as well as other commercial activities that encourage tourism. The goal of the Project is to expand development opportunities and attract tourists to the area. The potential increase in tourism could increase the number of people exposed to secondary seismic impacts such as ground failure, soil settlement, subsidence or liquefaction during an earthquake. However, all buildings would conform to state regulations and existing standard conditions or requirements which would reduce impacts to less than significant.

Infrastructure Impacts (of Implementing Projects)

Most infrastructure including sewer lines, domestic water transmission lines, and dry utilities will be placed underground within existing or proposed roadway right-of-ways. In addition, infrastructure improvements (pump stations, water tanks, roundabouts, etc.) are anticipated to be constructed within the Project area where deemed necessary. The placement of structures and facilities in or near areas susceptible to liquefaction could increase the potential for secondary seismic impacts such as ground failure, soil settlement, subsidence or liquefaction during an earthquake. However, the construction and placement of all infrastructure and infrastructure facilities would conform to state regulations, seismic design requirements, ordinances, and existing standard conditions or requirements which are designed to reduce impacts to less than significant.

Summary of Applicable Existing Regulations and Policies

- a) County of Riverside Municipal Code, Chapter 15.60 Earthquake Fault Area Construction Regulations requires that all development permit applications comply with the provisions of the Alquist-Priolo Earthquake Fault Zoning Act and the adopted Policies and Criteria of the State Mining and Geology Board.
- b) Implementation of County of Riverside General Plan Policies S 2.2 through S 2.8 would reduce potential damage from liquefaction through design standards and construction practices, restrictions on location, and public education.
- c) Standard Conditions or Requirements. Two mitigation measures prepared for the 2003 General Plan were adopted to reduce potential impacts from seismically-related liquefaction
 1. Pursuant to General Plan EIR No. 441 Mitigation Measures 4.10.3A, As determined by the County Geologist, a site-specific assessment shall be prepared to ascertain potential liquefaction impacts resulting from development. The site-specific liquefaction assessment shall incorporate up-to-date data from government and non-government sources and may be included as part of any site-specific geotechnical investigation required in General Plan EIR No. 441 Mitigation Measure 4.10.1A. This site-specific ground shaking assessment shall be prepared by a licensed geologist and shall be submitted to the County Geologist for review and approval prior to the issuance of building permits.
 2. Pursuant to General Plan EIR No. 441 Mitigation Measures 4.10.3B, where development is proposed within an identified or potential liquefaction hazard area (as determined by the County Geologist), adequate and appropriate measures such as (but not limited to) design foundations in a manner which limits the effects of liquefaction, the placement of an engineered fill with low liquefaction potential, and the alternative siting of structures in areas with a lower liquefaction risk, shall be implemented to reduce potential liquefaction hazards. Any such measures shall be submitted to the Riverside County Geologist and the County Department of Building and Safety for review prior to the approval of the building permits.

Mitigation Measures

Refer to Mitigation Measures GEO-1 above and LU-1 in Section 4.10, *Land Use and Relevant Planning*.

Conclusion

Although implementation of the Project would potentially increase exposure of future development associated with implementing projects within the Project area to damage caused by secondary seismic impacts such as ground failure, soil settlement, subsidence or liquefaction during an earthquake associated with an earthquake event, all implementing projects would be subject to the above-described State and local regulations, ordinances, General Plan policies, standard conditions or requirements, and mitigation, which are intended to reduce damage to structures and loss of life caused by an earthquake. Such conformance would be adequate to ensure that potential impacts from the effects of liquefaction on any habitable structure, critical facility, or other infrastructure would be reduced to less than significant with mitigation. This analysis is consistent with the requirements of a program EIR and future site-specific implementing projects proposed within the Project area will require site-specific CEQA analysis at a later date.



D. Landslides

Determination: Less than Significant with Mitigation

Wine Country Community Plan Overview of Programmatic Impacts

The Project area includes slopes that are greater than 15%.⁹ Such slopes are particularly subject to the potential for landslides or mudslides. Although landslides may occur as the result of seismic activity or other natural processes, the potential for such events can also be increased as the result of human activities such as grading or manufactured slope construction. Slope stability would be specific to the physical characteristics of a site, such as underlying soil and rock type, slope steepness, and water content of the soils.

By accommodating additional implementing projects, the Project would have the potential to subject additional persons and/or property to landslide risks. Future implementing projects proposed within or adjacent to areas susceptible to landslides or rockslides, as the result of implementation of the Project, would increase the potential for injury, death, or loss of property.

All implementing projects within the Project area would be required to comply with the requirements of the California Building Standards Code in Title 24. In areas where steep slopes occur that are susceptible to landslide hazards, proponents for implementing projects would be required to prepare a site-specific geologic and geotechnical investigation to identify potential impacts and provide recommendations as to slope stability and design requirements to reduce potential hazards resulting from landslides to a less than significant level (refer to Mitigation Measure GEO-3 below).

As applicable, implementing projects proposed within the Project area would be required to comply with General Plan Policies S 2.2 through S 2.8 to minimize potential effects of landslides and rockfalls on new development and/or infrastructure. The County of Riverside General Plan EIR No. 441 does not identify any specific mitigation measures pertaining to landslides.

Construction-related Impacts (of Implementing Projects)

Development resulting from implementing projects is expected to occur over a 25-year period. Temporary construction related impacts are anticipated to involve grading to construct buildings, access roads, signage, lighting, landscaping, onsite utilities, trails and necessary infrastructure improvements to support implementing projects. Construction activities such as grading or manufactured slope construction could increase the potential for landslides. However, all implementing projects within the Project area would be subject to applicable State and local regulations pertaining to specific construction methods and/or restrictions on land use to reduce the potential for property loss, injury, or death that could result from a landslide. Conformance with state regulations and existing standard conditions or requirements will reduce impacts to less than significant.

Operational Impacts (of Implementing Projects)

The Project will support new and existing rural residential, winery, and equestrian uses, as well as other commercial activities that encourage tourism. The goal of the Project is to expand development opportunities and attract tourists to the area. Implementing projects allowed under the Project, including residential, equestrian activities, and additional wineries would not cause landslides but could

⁹ County of Riverside Southwest Area Plan. Adopted October 2003.

increase the number of people exposed to a potential landslide. However, all buildings would conform to state regulations and existing standard conditions or requirements which would reduce impacts to less than significant.

Infrastructure Impacts (of Implementing Projects)

Most infrastructure including sewer lines, domestic water transmission lines, and dry utilities will be placed underground within existing or proposed roadway right-of-ways. In addition, infrastructure improvements (pump stations, water tanks, roundabouts, etc.) are anticipated to be constructed within the Project area where deemed necessary. The construction and placement of all infrastructure and infrastructure facilities would conform to state regulations, seismic design requirements, ordinances, and existing standard conditions or requirements which are designed to reduce impacts to less than significant.

Summary of Applicable Existing Regulations and Policies

- a) California Building Standards Code in Title 24, which would require specific geotechnical assessment to identify potential impacts and provide recommendations where steep slopes occur reduce potential hazards resulting from landslides
- b) Implementation of County of Riverside General Plan Policies S 2.2 through S 2.8 would minimize potential effects of landslides and rockfalls on new development and/or infrastructure

Mitigation Measures

Refer to Mitigation Measures GEO-1 above and LU-1 in Section 4.10, *Land Use and Relevant Planning*.

Conclusion

Although implementation of the Project would potentially increase exposure of future development associated with implementing projects within the Project area to damage caused by landslides, all future implementing projects would be subject to the above-described State and local regulations, ordinances, General Plan policies, standard conditions or requirements, and mitigation, which are intended to reduce damage to structures and loss of life caused by landslides. Such conformance would be adequate to ensure that potential impacts from the effects of landslides on any habitable structure, critical facility, or other infrastructure would be reduced to less than significant with mitigation. This analysis is consistent with the requirements of a program EIR and future site-specific implementing projects proposed within the Project area will require site-specific CEQA analysis at a later date.

Impact 4.6-2: Soil Erosion/Loss of Topsoil

Threshold: *Would the project result in substantial soil erosion or the loss of topsoil?*

Determination: *Less than Significant*

Wine Country Community Plan Overview of Programmatic Impacts

The Project area is subject to potential impacts from erosion or loss of topsoil due to natural and man-made conditions. By accommodating additional implementing projects in the future, the Project has the potential for subjecting additional lands to the effects of erosion or loss of topsoil. As lands within the Project area develop over future years, an increase in the disturbance of existing land surfaces from grading, development, or removal of existing vegetation/topsoil would potentially occur. As a result, the potential for erosion caused by wind and/or water would increase.

If applicable, implementing projects within the Project area would be required to comply with County of Riverside Ordinance No. 484.2 which provides requirements intended to reduce the potential for blowing sand within areas designated as Agricultural Dust Control Areas. This Ordinance identifies certain restrictions on land disturbance activities within these areas and identifies procedures necessary to obtain valid permit. As needed, an erosion control plan would be prepared and submitted to the County to identify methods by which potential soil run-off during rain events and erosion hazards would be minimized to ensure that no adverse effects on water quality occur to downstream properties or water bodies.

Additionally, implementing projects in the Project area would be required to comply with County of Riverside General Plan Policies S 3.5 and S 3.6 to minimize the potential effects of soil erosion and loss of topsoil. These policies require the identification of design and/or mitigation measures to address onsite and offsite slope instability, debris flow, and erosion hazards on properties where substantial land disturbance is required to allow for the proposed implementing project.

The County of Riverside General Plan EIR No. 441 provides mitigation measures to reduce the potential for soil erosion and the loss of topsoil to occur. Mitigation Measures 4.10.9A, 4.10.9B, and 4.10.9C require that, as applicable, proposed implementing projects comply with National Pollutant Discharge Elimination System (NPDES) requirements and that Best Management Practices (BMPs) are identified and implemented to reduce potential effects on downstream water bodies as the result of erosion. Additionally, applicants of implementing projects within the Project area would be required to include erosion and sediment control measures as part of the grading plan in order to minimize land modification and potential erosional effects. Specific design measures would be implemented on a project-specific basis, thereby reducing potential impacts caused by erosion and/or the loss of topsoil to less than significant.

Construction-related Impacts (of Implementing Projects)

Development resulting from implementing projects is expected to occur over a 25-year period. Temporary construction related impacts are anticipated to involve grading to construct buildings, access roads, signage, lighting, landscaping, onsite utilities, trails and necessary infrastructure improvements to support implementing projects. Construction activities including grading for buildings, roads, and trails would remove existing vegetation and topsoil which could increase the potential for erosion caused by wind and/or water. However, all implementing projects within the Project area would be subject to applicable State and local regulations pertaining to specific construction methods and/or restrictions on land use to reduce the potential for soil erosion and loss of topsoil. In addition compliance with Regional Water Quality Control Board requirements and preparation of plans (i.e. Stormwater Pollution Prevention Plan and Water Quality Management Plan) would further reduce impacts, since these plans require BMPs to reduce soil erosion during construction activities. Conformance with state regulations and existing standard conditions or requirements will reduce impacts to less than significant.

Operational Impacts (of Implementing Projects)

The Project will support new and existing rural residential, winery, and equestrian uses, as well as other commercial activities that encourage tourism. The goal of the Project is to expand development opportunities and attract tourists to the area. Changes in land use, including the increase in viticulture, could result in an increase in soil erosion and loss of topsoil within the Project area. However, all

implementing projects proposed within the Project area will be required to provide BMPs to prevent soil erosion and loss of topsoil during operation to ensure that downstream environments are not impacted. As a result of compliance with state regulations and existing standard conditions or requirements, impacts are considered less than significant.

Infrastructure Impacts (of Implementing Projects)

Most infrastructure including sewer lines, domestic water transmission lines, and dry utilities will be placed underground within existing or proposed roadway right-of-ways. In addition, infrastructure improvements (pump stations, water tanks, roundabouts, etc.) are anticipated to be constructed within the Project area where deemed necessary. The construction and placement of all infrastructure and infrastructure facilities would conform to state regulations, ordinances, and existing standard conditions or requirements which are designed to reduce soil erosion impacts to less than significant.

Summary of Applicable Existing Regulations and Policies

- a) County of Riverside Ordinance No. 484.2 provides requirements intended to reduce the potential for blowing sand within areas designated as Agricultural Dust Control Areas.
- b) Implementation of Riverside County General Plan Policies S 3.5 and S 3.6 minimize the potential effects of soil erosion and loss of topsoil.
- c) Standard Conditions or Requirements. Three mitigation measures prepared for the 2003 General Plan were adopted to reduce the potential for soil erosion and the loss of topsoil to occur.
- d) General Plan EIR No. 441 Mitigation Measures 4.10.9A, 4.10.9B, and 4.10.9C
 1. Pursuant to General Plan EIR No. 441 Mitigation Measures 4.10.9A, Riverside County, where required, and in accordance with issuance of a National Pollutant Discharge Elimination System (NPDES) permit, shall require the construction and/or grading contractor for individual developments to establish and implement specific Best Management Practices (BMPs) at time of project implementation.
 2. Pursuant to General Plan EIR No. 441 Mitigation Measures 4.10.9B, Prior to any development within the County, a Grading Plan shall be submitted to the Riverside County Building and Safety Department and/or Riverside County Geologist for review and approval. As required by the County, the grading plan shall include erosion and sediment control plans. Measures included in individual erosion control plans may include, but shall not be limited to, the following:
 - Grading and development plans shall be designed in a manner which minimizes the amount of terrain modification.
 - Surface water shall be controlled and diverted around potential landslide areas to prevent erosion and saturation of slopes.
 - Structures shall not be sited on or below identified landslides unless slides are stabilized.
 - The extent and duration of ground disturbing activities during and immediately following periods of rain shall be limited, to avoid the potential for erosion which may be accelerated by rainfall on exposed soils.
 - To the extent possible, the amount of cut and fill shall be balanced.
 - The amount of water entering and exiting a graded site shall be limited through the placement of interceptor trenches or other erosion control devices.
 - Erosion and sediment control plans shall be submitted to the County for review and approval prior to the issuance of grading permits.

3. Pursuant to General Plan EIR No. 441 Mitigation Measures 4.10.9C, Where required, drainage design measures shall be incorporated into the final design of individual projects on-site. These measures shall include, but will not be limited to:
 - Runoff entering developing areas shall be collected into surface and subsurface drains for removal to nearby drainages.
 - Runoff generated above steep slopes or poorly vegetated areas shall be captured and conveyed to nearby drainages.
 - Runoff generated on paved or covered areas shall be conveyed via swales and drains to natural drainage courses.
 - Disturbed areas that have been identified as highly erosive shall be (re)vegetated.
 - Irrigation systems shall be designed, installed, and maintained in a manner which minimizes runoff.
 - The landscape scheme for projects within the project site shall utilize drought-tolerant plants.
 - Erosion control devices such as rip-rap, gabions, small check dams, etc., may be utilized in gullies and active stream channels to reduce erosion.

Mitigation Measures

No additional mitigation is necessary.

Conclusion

Although implementation of the Project would potentially increase exposure of future development associated with implementing projects within the Project area to impacts related to soil erosion and loss of topsoil, all future implementing projects would be subject to the above-described State and local regulations, ordinances, General Plan policies, and standard conditions or requirements, which are intended to reduce soil erosion and loss of topsoil. Such conformance would be adequate to ensure that potential impacts from soil erosion and loss of topsoil would be reduced to less than significant, and no additional mitigation measures are required or proposed. This analysis is consistent with the requirements of a program EIR and future site-specific implementing projects proposed within the Project area will require site-specific CEQA analysis at a later date.

Impact 4.6-3: Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse

Threshold: *Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

Determination: *Less than Significant with Mitigation*

Wine Country Community Plan Overview of Programmatic Impacts

By accommodating future implementing projects, the Project would have the potential to introduce new structures on soils or within areas having the potential for landslide, lateral spreading, subsidence, liquefaction, collapse and other types of ground failure, thereby placing people and/or property at increased risk. Future construction activities would also have the potential to affect existing structures within the Project area by altering the soils or geology underlying the properties.

Areas subject to subsidence and liquefaction are found within the Project area; refer to Exhibit 4.6-4, *Liquefaction Zones*, and Exhibit 4.6-5, *Subsidence Areas*. For areas subject to landslide hazards, refer to General Plan Figure S-4, *Earthquake-Induced Slope Instability Map*. Additionally, soils susceptible to subsidence, hydro-consolidation, and/or soil collapse may be potentially affected by various naturally-occurring or human-induced activities, such as seismic events or the withdrawal of subsurface fluids (e.g. groundwater, oil, etc.).

Refer to Impact 4.6-1(iii), Liquefaction, and Impact 4.6-1(iv), Landslides, for a discussion of potential impacts and required measures to reduce potential impacts resulting from the Project to less than significant. All implementing projects within the Project area would be required to comply with the requirements of the California Building Standards Code in Title 24 for construction occurring within areas subject to subsidence or lateral spreading. Prior to any construction in areas on unstable soils, a site-specific geotechnical assessment would be required to identify potential adverse impacts and appropriate recommendations to ensure stability of the site if implementing projects are to occur. Prior to the issuance of a grading permit, applicants would be required to prepare grading plans consistent with recommendations of the geotechnical study to ensure that impacts relative to expansive soils, lateral spreading, or collapse would be reduced to less than significant.

Similarly, implementing projects within the Project area would be required to comply with General Plan Policies S 3.8 through S 3.10 which would minimize the effects of subsidence and soil collapse by requiring preparation of a site-specific geotechnical study for areas where unstable soils are present and implementation of recommended geotechnical measures to reduce potential impacts from subsidence and collapsible soils to less than significant. The County of Riverside General Plan EIR No. 441 does not identify any specific mitigation measures pertaining to subsidence and collapsible soils, and therefore, no mitigation measures are required or proposed.

Construction-related Impacts (of Implementing Projects)

Development resulting from implementing projects is expected to occur over a 25-year period. Temporary construction related impacts are anticipated to involve grading to construct buildings, access roads, signage, lighting, landscaping, onsite utilities, trails and necessary infrastructure improvements to support implementing projects. All implementing projects within the Project area would be subject to applicable State and local regulations pertaining to specific construction methods and/or restrictions on land use to reduce the potential for landslide, lateral spreading, subsidence, liquefaction, or collapse. Conformance with state regulations and existing standard conditions or requirements will reduce impacts to less than significant.

Operational Impacts (of Implementing Projects)

The Project will support new and existing rural residential, winery, and equestrian uses, as well as other commercial activities that encourage tourism. The goal of the Project is to expand development opportunities and attract tourists to the area. The potential increase in tourism could increase the number of people exposed to hazards such as landslide, lateral spreading, subsidence, liquefaction, or collapse during an earthquake. However, all buildings would conform to state regulations and existing standard conditions or requirements which would reduce impacts to less than significant.

Infrastructure Impacts (of Implementing Projects)

Most infrastructure including sewer lines, domestic water transmission lines, and dry utilities will be placed underground within existing or proposed roadway right-of-ways. In addition, infrastructure

improvements (pump stations, water tanks, roundabouts, etc.) are anticipated to be constructed within the Project area where deemed necessary. The placement of structures and facilities in or near areas susceptible to landslide, lateral spreading, subsidence, liquefaction, or collapse during an earthquake could increase the potential impacts to occur. However, the construction and placement of all infrastructure and infrastructure facilities would conform to state regulations, seismic design requirements, ordinances, and existing standard conditions or requirements which are designed to reduce impacts to less than significant.

Summary of Applicable Existing Regulations and Policies

- a) California Building Standards Code in Title 24, which provides regulations for structural design and construction with regard to seismic safety.
- b) Implementation of Riverside County General Plan Policies S 3.8 through S 3.10 which would minimize the effects of subsidence and soil collapse by requiring preparation of a site-specific geotechnical study for areas where unstable soils are present

Mitigation Measures

Refer to Mitigation Measure GEO-1 above.

Conclusion

Although implementation of the Project would potentially increase exposure of future development associated with implementing projects within the Project area to damage caused by hazards such as landslide, lateral spreading, subsidence, liquefaction, or collapse during an earthquake, all implementing projects would be subject to the above-described State and local regulations, ordinances, General Plan policies, standard conditions or requirements, and mitigation, which are intended to reduce damage to structures and loss of life caused by an hazards associated with an earthquake event. Such conformance would be adequate to ensure that potential impacts from these hazards on any habitable structure, critical facility, or other infrastructure would be reduced to less than significant with mitigation. This analysis is consistent with the requirements of a program EIR and future site-specific implementing projects proposed within the Project area will require site-specific CEQA analysis at a later date.

Impact 4.6-4: Expansive Soils

Threshold: *Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?*

Determination: *Less than Significant*

Wine Country Community Plan Overview of Programmatic Impacts

As noted previously, the predominant soils in the Project area generally consist of sandy loams. The swell and shrink (expansion) potential for sandy loam is low to moderate; however, the potential exists for expansive soils, as defined in Section 1803.5.3 of the 2010 California Building Code (previously defined in Table 18-1-B of the Uniform Building Code), to occur sporadically throughout the Project area and the surrounding region. Currently, no comprehensive mapping of expansive soils exists for the Project area. If not managed properly, implementing projects occurring on such soils within the Project area could pose a significant risk to life and property, in particular structural damage and/or the



disruption of utility facilities. Construction activities would also have the potential to create risk to existing structures by disturbing or altering underlying soils or geologic conditions.

All implementing projects within the Project area would be required to comply with the requirements of the California Building Standards Code in Title 24 for construction occurring within areas subject to expansive soils. Prior to any construction in such areas, a site-specific geotechnical assessment would be required to identify potential adverse impacts and appropriate recommendations to ensure stability of a specific site if implementing projects are to occur. Prior to the issuance of a grading permit, applicants would be required to prepare grading plans consistent with recommendations of the geotechnical study to ensure that impacts relative to expansive soils are reduced to less than significant.

The County of Riverside General Plan does not identify any specific policies pertaining to expansive soils; however, as appropriate, implementing projects within the Project area would be required to implement Mitigation Measure 4.10.7A as provided in the General Plan EIR No. 441, to reduce potential impacts with regard to expansive soils. As such, applicants would be required to adhere to the requirements of the California Building Standards Code in Title 24 for construction occurring within areas subject to expansive soils.

Construction-related Impacts (of Implementing Projects)

Development resulting from the Project is expected to occur over a 25-year period. Temporary construction related impacts are anticipated to involve grading to construct buildings, access roads, signage, lighting, landscaping, onsite utilities, trails and necessary infrastructure improvements to support implementing projects. The predominant soil in the Project area is sandy loam which has a low to moderate potential for expansion. However, the potential still exists for expansive soils to occur sporadically throughout the Project area and the surrounding region. In addition, construction activities would also have the potential to create risk to existing structures by disturbing or altering underlying soils or geologic conditions. All implementing projects within the Project area would be subject to applicable State and local regulations pertaining to specific construction methods and/or restrictions on land use to reduce the potential for property loss, injury, or death that could result from strong seismic ground shaking. Conformance with state regulations and existing standard conditions or requirements will reduce impacts to less than significant.

Operational Impacts (of Implementing Projects)

The Project will support new and existing rural residential, winery, and equestrian uses, as well as other commercial activities that encourage tourism. The goal of the Project is to expand development opportunities and attract tourists to the area. The development of future facilities on soils susceptible to expansion could pose a significant risk to life and property. However, all buildings would conform to state regulations and existing standard conditions or requirements which would reduce impacts to less than significant.

Infrastructure Impacts (of Implementing Projects)

Most infrastructure including sewer lines, domestic water transmission lines, and dry utilities will be placed underground within existing or proposed roadway right-of-ways. In addition, infrastructure improvements (pump stations, water tanks, roundabouts, etc.) are anticipated to be constructed within the Project area where deemed necessary. The construction and placement of infrastructure and infrastructure facilities on soils susceptible to expansion could result in structural damage and/or the disruption of utility facilities and pose a significant risk to life and property. However, the construction



and placement of all infrastructure and infrastructure facilities would conform to state regulations, seismic design requirements, ordinances, and existing standard conditions or requirements which are designed to reduce impacts to less than significant.

Summary of Applicable Existing Regulations and Policies

- a) California Building Standards Code in Title 24, which provides regulations for construction occurring within areas subject to expansive soils.
- b) Standard Conditions or Requirements. One mitigation measure prepared for the 2003 General Plan was adopted to reduce potential impacts with regard to expansive soils.
 1. Pursuant to General Plan EIR No. 441 Mitigation Measures 4.10.7A, proponents of new development within Riverside County shall adhere to applicable policies and standards contained in the most-recent version of the California Building Code related to the construction of structures and facilities on expansive soils.

Mitigation Measures

No additional mitigation is necessary.

Conclusion

Although implementation of the Project could potentially expose future development associated with implementing projects within the Project area to damage caused by expansive soils, all future implementing projects would be subject to the above-described State and local regulations, ordinances, General Plan policies, and standard conditions or requirements, which are intended to reduce damage to structures and loss of life caused by expansive soils. Such conformance would be adequate to ensure that potential impacts from the effects of expansive soils on any habitable structure, critical facility, or other infrastructure would be reduced to less than significant, and no additional mitigation measures are required or proposed. This analysis is consistent with the requirements of a program EIR and future site-specific implementing projects proposed within the Project area will require site-specific CEQA analysis at a later date.

Impact 4.6-5: Soils Incapable of Supporting Wastewater Disposal Systems

Threshold: *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

Determination: *Less than Significant*

Wine Country Community Plan Overview of Programmatic Impacts

Extensive areas of unincorporated territory within Temecula Valley Wine Country lie outside of existing special districts that provide sewer services. As a result, implementing projects on such lands would be required to rely on the use of septic tanks or alternative wastewater disposal systems. Within certain areas, soils have moderate to severe limitations that restrict the potential use of septic tanks or alternative wastewater disposal systems (refer to Exhibit 4.6-6, *Wine Country NRCS Soils Mapping*). Therefore, to the extent that the Project would accommodate future implementing projects in these areas, there is the potential for resulting effects on soils that cannot adequately support the use of septic tanks or alternative wastewater disposal systems.

Prior to approval of a grading permit, all future implementing project applicants would be required to demonstrate compliance with State and/or County requirements and prepare a site-specific geotechnical investigation to determine underlying soil type, permeability, structural loads, design and integrity, and to evaluate the properties of onsite soils and their potential to adequately accommodate septic tanks or alternative wastewater systems. The County of Riverside General Plan EIR No. 441 does not include any mitigation measures to reduce impacts associated with septic tanks or alternative wastewater systems, and no such mitigation measures are proposed.

Construction-related Impacts (of Implementing Projects)

Development resulting from the Project is expected to occur over a 25-year period. Temporary construction related impacts are anticipated to involve grading to construct buildings, access roads, signage, lighting, landscaping, onsite utilities, trails and necessary infrastructure improvements to support implementing projects. Prior to grading, future implementing project developers would be required to submit proof that soil is stable enough to support a septic system and/or an alternative wastewater system. All implementing projects within the Project area would be subject to applicable State and local regulations to ensure that potential impacts related to soil and wastewater disposal systems are less than significant or avoided altogether by prohibiting development of such systems in areas where soils cannot accommodate these systems.

Operational Impacts (of Implementing Projects)

The Project will support new and existing rural residential, winery, and equestrian uses, as well as other commercial activities that encourage tourism. The goal of the Project is to expand development opportunities and attract tourists to the area. The potential increase in tourism would increase the generation of wastewater and could potentially increase the use of septic systems/ alternative wastewater systems. However, all implementing projects generated more than 1,200 gpd of effluent would be required to obtain approval from the RWQCB to use one of these systems and would be required conform to state regulations and existing standard conditions or requirements which would reduce impacts to less than significant.

Infrastructure Impacts (of Implementing Projects)

Most infrastructure including sewer lines, domestic water transmission lines, and dry utilities will be placed underground within existing or proposed roadway right-of-ways. In addition, infrastructure improvements (pump stations, water tanks, roundabouts, etc.) are anticipated to be constructed within the Project area where deemed necessary. The construction and placement of all infrastructure and infrastructure facilities is not anticipated to require the use of septic systems and would conform to state regulations, seismic design requirements, ordinances, and existing standard conditions or requirements which are designed to reduce impacts to less than significant.

Summary of Applicable Existing Regulations and Policies

- a) Standard Conditions or Requirements. One mitigation measure prepared for the 2003 General Plan was adopted to reduce potential impacts with regard to septic tanks or alternative wastewater disposal systems.
 2. Pursuant to General Plan EIR No. 441 Mitigation Measures 4.17.5A, the development of septic systems shall be in accordance with applicable standards established by Riverside County and other responsible authorities.

Mitigation Measures

Refer to Mitigation Measures PSU SEWER 1 through 2 in Section 4.13, *Public Services, Recreation and Utilities*. No additional mitigation is necessary.

Conclusion

Although implementation of the Project would potentially increase sewer flows associated with implementing projects within the Project area, all implementing projects would be subject to the above-described State and local regulations, ordinances, General Plan policies, and standard conditions or requirements, which are intended to limit the use of septic systems within the Project area. In addition, EMWD has conducted a study to identify the necessary sewer improvements to support buildout of the Project and reduce dependence on onsite wastewater treatment within the Project area. Such conformance would be adequate to ensure that potential impacts from the use of septic systems would be reduced to less than significant, or that impacts would be avoided altogether by prohibiting development of such systems in areas where soils could not accommodate these systems. No additional mitigation measures are required or proposed at this time. This analysis is consistent with the requirements of a program EIR and future site-specific implementing projects proposed within the Project area will require site-specific CEQA analysis at a later date.

4.6.6 CUMULATIVE IMPACTS

Threshold: *Would the project result in cumulative impacts associated with implementation of the Wine Country Community Plan?*

Determination: *Less than Significant*

Cumulative impacts to geology, soils, and seismicity are addressed in the Riverside County General Plan Final EIR No. 441, which is incorporated by reference into this EIR. Geologic hazards are generally localized in nature, as they are related to the soils and geologic character of a particular site. Cumulative impacts could occur related to an earthquake, depending on the magnitude of the earthquake and location of the fault(s) traversing the region. Impacts due to seismic activity would be cumulative if State and local building and development codes and regulations were not actively being implemented throughout the region.

The Project is not anticipated to result in the exposure of people or structures to potential substantial adverse effects from the rupture of a known earthquake fault or unstable soils, or soils that would become unstable as a result of the Project and potentially result in onsite or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse. All implementing projects within the Project area, as well as all future development within surrounding areas, would be subject to applicable State and local building codes, ordinances, and policies, and site-specific design measures intended to reduce the potential for significant damage to occur as the result of seismic activity, landslides, and other such geologic hazards.

The Project is not considered to result in significant cumulative impacts relative to geology or soils. Impacts would be less than significant, and no additional mitigation measures are required or proposed. This analysis is consistent with the requirements of a program EIR and future site-specific implementing projects proposed within the Project area will require site-specific CEQA analysis at a later date.



4.6.7 LEVEL OF SIGNIFICANCE AFTER MITIGATION

No unavoidable significant impacts have been identified.



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